PIXMA iP6220D

SERVICE MANUAL

Canon

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Scope

This manual has been issued by Canon Inc., to provide the service technicians of this product with the information necessary for qualified persons to learn technical theory, installation, maintenance, and repair of products. The manual covers information applicable in all regions where the product is sold. For this reason, it may contain information that is not applicable to your region.

Revision

This manual could include technical inaccuracies or typographical errors due to improvements or changes made to the product. When changes are made to the contents of the manual, Canon will release technical information when necessary. When substantial changes are made to the contents of the manual, Canon will issue a revised edition.

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CANON INC.
Inkjet Device Quality Assurance Div. 1
451, Tsukagoshi 3-chome, Saiwai-ku, Kawasaki-shi, Kanagawa 212-8530, Japan

I. MANUAL OUTLINE

This manual consists of the following three parts to provide information necessary to service the PIXMA iP6220D:

Part 1: Maintenance
Information on maintenance and troubleshooting of the PIXMA iP6220D

Part 2: Technical Reference
New technology and technical information such as FAQ's (Frequently Asked Questions) of the PIXMA iP6220D

Part 3: Appendix
Block diagrams and pin layouts of the PIXMA iP6220D

Reference:
This manual does not provide sufficient information for disassembly and reassembly procedures. Refer to the graphics in the separate Parts Catalog.

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Part 1

MAINTENANCE

1. MAINTENANCE

1-1. Adjustment, Periodic Maintenance, Periodic Replacement Parts, and Replacement Consumables by Service Engineer

(1) Adjustment

Adjustment	Timing	Purpose	Tool	Approx. time
EEPROM initialization (EEPROM settings)	At logic board ass'y replacement	To initialize settings other than the following: - USB serial number - Destination setting - Waste ink counter	None.	1 min.
Destination settings (EEPROM settings)	At logic board ass'y replacement	To set the destination.	None.	1 min.
LCD language settings	At logic board ass'y replacement	To set the language to be displayed on the LCD.	None.	1 min.
Waste ink counter resetting (EEPROM settings)	- At bottom case unit replacement - At ink absorber replacement	To reset the waste ink counter.	None.	1 min.
Print head alignment	- At printer setup - At print head replacement - At logic board ass'y replacement - At carriage unit replacement	To ensure accurate dot placement.	- Machine buttons (Auto/Manual) - Computer (settings via the printer driver) (Auto/Manual)	Auto:4 min. Manual:3 min.
Paper feed motor position adjustment*1	At paper feed motor unit replacement	To adjust the belt tension. (Position the paper feed motor so that the belt is stretched tight.)	None.	2 min.
Grease application	- At carriage unit replacement - At bottom case unit replacement - At platen replacement - At eject roller replacement - At cap blade unit replacement -	- To maintain sliding properties of the carriage, cap blade unit, and eject rollers.	- FLOIL KG-107A (QY9-0057) - MOLYKOTE PG641 (CK-0562)	1 min.

*1: Red screws of paper feed motor
The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit.

(2) Periodic maintenance

No periodic maintenance is necessary.

(3) Periodic replacement parts

There are no parts in this machine that require periodic replacement by a service engineer.

(4) Replacement consumables

There are no consumables that require replacement by a service engineer.

1-2. Customer Maintenance

Adjustment	Timing	Purpose	Tool	Approx. time
Print head alignment	When print quality is not satisfying. When printer is set up.	To ensure accurate dot placement.	- Machine buttons (Auto/Manual) - Computer (settings via the printer driver) (Auto/Manual)	Auto:4 min. Manual:3 min.
Print head cleaning	When print quality is not satisfying.	To improve nozzle conditions.	- Machine button - Computer (settings via the MP driver)	1 min.
Print head deep cleaning	When print quality is not satisfying, and not improved by print head cleaning.	To improve nozzle conditions.	- Machine button - Computer (settings via the MP driver)	2 min.
Ink cartridge replacement	When an ink cartridge becomes empty. (No ink error)	-----	-----	2 min.
Paper feed roller cleaning	When paper does not feed properly.	To clean the paper feed rollers.	Machine button	2 min.
Bottom plate cleaning	When the back side of the paper is smeared	To clean the platen ribs.	- Machine button - Computer (settings via the MP driver)	1 min.

1-3. Product Life

(1) Machine

Specified print volume (I) or the years of use (II), whichever comes first.

(I) Print volume

		6,600 pages
Black	1,500 character pattern	1,300 pages
Color	A4, 7.5% duty per color pattern	1,000 pages
	A4, 30 % duty per color pattern	1,000 pages
	4 x 6, 30 % duty per color pattern	3,000pages
	Postcard, 30 % duty per color pattern	300 pages

(II) Years of use

5 years of use

(2) Ink cartridge (ink tank with nozzles) (target value)

CL-52: 450 pages (1,500 character pattern / plain paper / standard mode)

710 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)

CL-51: 330 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)

CL-52: 110 pages (24 photos taken by a digital camera / borderless printing / SP-101 4x6 / standard mode)

CL-51: 180 pages (24 photos taken by a digital camera / borderless printing / SP-101 4x6 / standard mode)

1-4. Special Tools

Name	Tool No.	Application	Remarks
MOLYKOTE PG-641	QY9-0035-000	To be applied to the chassis.	In common with other models.
FLOIL KG-107A	QY9-0057-000	To be applied to the sliding portion of the carriage, and the platen link.	In common with other models.

1-5. Serial Number Location

On the chassis (visible when the front cover is open).

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<Part 1: 1.MAINTENANCE>

2. LIST OF ERROR DISPLAY / INDICATIONS

Errors and warnings are displayed by the following ways:

1) Operator call errors are indicated by the Alarm LED lit. (In the service mode, the Alarm LED blinks to indicate errors.)
   Service call errors are indicated by the number of cycles the Alarm and Power LEDs blink.
2) Errors and warnings are displayed on the LCD on the operation panel.
3) Warnings are displayed on the MP driver Status Monitor.

2-1. Operator Call Errors (by Alarm LED Lit in Orange)

LCD Message	Alarm LED blinking in orange (in the service mode only)	Error [Error code]	Solution	Remarks
There is no paper. Load paper and press [OK].	2 times	No paper. (ASF) [1000]	Set the paper in the ASF, and press the OK button.	
The paper is jammed. Clear the paper and press [OK].	3 times	Paper jam. [1300]	Remove the jammed paper, and press the OK button.	
Ink has run out. Replace the ink cartridge and close the cover. U041	-	No ink. [1600]	Replace the empty ink cartridge(s), or press the OK button.	Pressing the OK button will exit the error without ink cartridge replacement, however, ink may run out during printing.
The following ink cartridge cannot be recognized. U051 / U059	5 times	Ink cartridge not installed. [1401] Ink cartridge not for this model installed. [1485]	Confirm that the ink cartridges are for this model, install them properly, then close the front cover.	
The following ink cartridge cannot be recognized. U052	15 times	Ink cartridge not installed. [1682]	Re-install the applicable ink cartridge(s) properly, and close the front cover. Or, with the ink cartridges installed, turn the machine off and on again.	
The following ink cartridge cannot be recognized. U140	-	Ink cartridge not for this model installed. [1684]	Confirm that the ink cartridges are for this model, install them properly, then close the front cover.	
Some ink cartridge are not installed in place. U075	7 times	Multiple ink cartridges of the same color installed. [1687]	Replace the wrong ink cartridge with the correct one.	
Some ink cartridge are not installed in place. U076	7 times	Ink cartridge in a wrong position. [1686]	Install the ink cartridge in the correct position.	
The following ink cartridge cannot be recognized. U053	4 times	Improper installation of an ink cartridge. [1687]	Re-install the applicable ink cartridge(s) properly, and close the front cover.	
The waste ink	-	Warning: The waste	Pressing the OK button	The service call error,

absorber is almost full. Press [OK] to continue but early replacement recommended. <See manual>		ink absorber becomes almost full. [1700 for the main waste ink absorber, 1710 for the platen waste ink absorber]	will clear the error, and enable printing. **At repair*1:** For main waste ink absorber replacement, replace - the bottom case unit, or - the ink absorber kit For platen ink absorber replacement, replace - the ink absorber , and - the ink absorber kit MP450: QY5-0151).	indicating the waste ink absorber is full, is likely to occur soon.
Incompatible device detected. Remove the device.	-	The connected digital camera or digital video camera does not support Camera Direct Printing. [2001]	Remove the cable between the camera and the machine, press the Stop/Reset button, then re-connect the cable.	
The following ink may have run out. U161 An ink cartridge that was once empty is installed. U162	-	Remaining ink amount unknown. [1685/1686]	A once-used ink cartridge (except the one which has been used until just before replacement) is installed. Replace the applicable ink cartridge with a new one, or press the OK button.	Pressing the OK button will exit the error without ink cartridge replacement, however, the function to detect the remaining ink amount is disabled.
Auto head align has failed. Press [OK] and repeat operation. <See manual>	-	Failed in automatic print head alignment.	Press the OK button to exit the error, confirm the following, then do the print head alignment again: - Set A4 or LTR size plain paper. - If the ink nozzles are clogged, cleaning the ink cartridge. - If the paper output slot has been exposed to a strong light, move the printer to a darker location.	Press the Stop/Reset button. - If paper is being fed at error occurrence, the error is indicated after the paper is ejected. - If the error occurs, the print head alignment values are not changed. - After exit from the error by the Stop/Reset button, the automatic print head alignment will not be re-done.
Cover is open.	-	Front cover open. [1200]	Close the front cover.	

*1: The main waste ink absorber is separate from the platen waste ink absorber. In servicing, replace the waste ink absorber which becomes full.

[See Section 3-3. Adjustment / Settings, (6) Service mode, for details.]

2-2. Service Call Errors (by Cyclic Blinking in Orange (Alarm LED) and Green (Power LED), or Alarm LED Lit in Orange)

Cycles of blinking in orange (Alarm LED) and green (Power LED)	Error [Error code]	Solution (Replacement of listed parts, which are likely to be faulty)
2 times	Carriage error [5100]	- Carriage unit (QM2-3332) - Timing slit strip film (QC1-6015) - Logic board ass'y (QM2-2840)*1 - Carriage motor (QM2-2865)
3 times	Paper feed error [6000]	- Timing sensor ass'y (QM2-2850) - Timing slit disk film (QC1-4962) - Feed roller ass'y (QL2-1284) - Platen (QC1-7503) - Logic board ass'y (QM2-2840)*1 - Paper feed motor (QM2-2866)
4 times	Purge unit error [5C00]	- Carriage unit (QM2-3332) - Timing slit strip film (QC1-6015) - Logic board ass'y (QM2-2840)*1 - Carriage motor (QM2-2865)
5 times	ASF (cam) sensor error [5700]	- Drive ass'y (QM2-3333) - PE sensor ass'y (QM2-2855) - Pressure roller ass'y (QM2-3337)
6 times	Internal temperature error [5400]	- Logic board ass'y (QM2-2840)*1
7 times	Waste ink absorber full [5B00]*2	**Main waste ink absorber:** - Bottom case unit (QM2-3321)*3 - Ink absorber kit (QY5-0148) **Platen waste ink absorber:** - Ink absorber (QC1-6014) - Ink absorber kit (QY5-0148)
8 times	Cartridge temperature rise error [5200]	- Print head - Logic board ass'y (QM2-2840)*1
9 times	EEPROM error [6800]	- Logic board ass'y (QM2-2840)*1
13 times	Paper feed position error [6B00]	- Paper feed motor (QM2-2866) - Logic board ass'y (QM2-2840)*1
15 times	USB Host VBUS overcurrent [9000]	- Logic board ass'y (QM2-2840)*1
17 times	Motor driver error [6D00]	- Logic board ass'y (QM2-2840)*1
20 times	Other hardware error [6500]	- Logic board ass'y (QM2-2840)*1
Continuous alternate blinking	ROM error	- Logic board ass'y (QM2-2840)*1
Lights in orange	RAM error	- Logic board ass'y (QM2-2840)*1

*1: Before replacement of the logic board ass'y, check the waste ink amount, and re-set the waste ink amount value in the replaced logic board.
[See Section 3-3. Adjustment / Settings, (6) Service mode, for details.]

*2: The main waste ink absorber is separate from the platen waste ink absorber. In servicing, replace the waste ink absorber which becomes full.
[See Section 3-3. Adjustment / Settings, (6) Service mode, for details.]

*3: Reset the waste ink counter when replacing the bottom case unit. The main and platen waste ink counters can be reset separately.
[See Section 3-3. Adjustment / Settings, (6) Service mode, for details.]

2-3. Warnings

Machine (displayed on the LCD):

Displayed warning	Remarks
Low ink	
Print head temperature rise	If the print head temperature is high when the scanning unit is opened, the warning is displayed.*1 When the print head temperature falls, the warning is released.
Protection of excess rise of the print head temperature	If the print head temperature exceeds the specified limit, a Wait is inserted during printing,

*1: If the warning is displayed, the carriage does not move to the ink cartridge replacement position when the scanning unit is opened.

2-4. Troubleshooting by Symptom

	Symptom	Solution	Remarks
Faulty operation	The power does not turn on. The power turns off immediately after power-on.	Replace the - AC adapter, or - logic board ass'y*1.	
	Strange noise.	Remove foreign material, or attach a removed part if any.	
	Printing stops mid-way.	Replace the logic board ass'y*1.	
	Nothing is displayed on the LCD.	- Confirm the connection of the LCD, operation panel, and the logic board ass'y. - Replace the - LCD, or - logic board ass'y.	
	A portion of the LCD is not displayed.	- Perform the button and LCD test in the service mode, and confirm that the LCD is displayed without any segments missing. - Confirm the connection of the LCD, operation panel, and the logic board ass'y. - Replace the - LCD, or - logic board ass'y.	
Paper feed problems	Multiple sheets feed.	Replace the - drive unit, or - pressing plate ass'y.	
	Paper does not feed.	Remove foreign material, or replace the - drive unit, or - pressing plate ass'y.	
	Paper feeds at an angle.	Remove foreign material, or adjust the paper guide, or replace the - drive unit, or - pressing plate ass'y.	
	No printing, or no color ejected.	Replace the - ink cartridge*2, - logic board ass'y*1,	

		- drive unit, or - cap blade unit.	
Unsatisfactory print quality	Printing is faint, or white lines appear on printouts even after print head cleaning. Line(s) not included in the print data appears on printouts.	Remove and re-install the ink cartridges, or replace the - ink cartridge*2, - cap blade unit, - purge unit, or - logic board ass'y*1.	
	Paper gets smeared.	Feed several sheets of paper, perform bottom plate cleaning, or clean the paper path with cotton swab or cloth.	
	A part of a line is missing on printouts.	Replace the ink cartridge(s)*2.	
	Color hue is incorrect.	Replace the ink cartridge*2, or perform print head alignment.	
	Printing is incorrect.	Replace the logic board ass'y*1.	
	No ejection of black ink.	Replace the ink cartridge(s)*2.	
	Graphic or text is enlarged on printouts.	When enlarged in the carriage movement direction, clean grease or oil off the timing slit strip film, or replace the - timing slit strip film, - carriage unit, or - logic board ass'y*1. When enlarged in the paper feed direction, clean grease or oil off the timing slit disk film, or replace the - timing slit disk film, - timing sensor unit, or - logic board ass'y*1.	

*1: Before replacement of the logic board ass'y, check the waste ink amount, and re-set the waste ink amount value on the replaced logic board.
[See Section 3-3. Adjustment / Settings, (6) Service mode, for details.]

*2: Replace the print head only after the print head deep cleaning is performed 2 times, and when the problem persists.

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<Part 1: 2. LIST OF ERROR DISPLAY / INDICATION>

3. REPAIR

3-1. Notes on Service Part Replacement (and Disassembling / Reassembling)

Service part	Notes on replacement*1	Adjustment / settings	Operation check
Logic board ass'y QM2-2840	- Before removal of the logic board ass'y, remove the power cord, and allow for approx. 1 minute (for discharge of capacitor's accumulated charges), to prevent damage to the logic board ass'y. - After replacement, reset the waste ink amount data in the replaced logic board ass'y. [See 3-3. Adjustment / Settings, (6) Service mode, for details.]	**After replacement:** 1. Initialize the EEPROM. 2. Set the destination in the EEPROM. 3. Set the LCD language. [See 3-3. Adjustment / Settings, (6) Service mode, for details of 1 to 4.] 4. Perform the print head alignment in the user mode.	- EEPROM information print - Service test print - Printing via parallel or USB connection - Direct printing from a digital camera - Direct printing from a memory card - Print Beam printing
Bottom case unit QM2-3321 Ink absorber QY5-0148	Main platen waste ink absorber	**After replacement:** 1. Reset the main waste ink counter. [See 3-3. Adjustment / Settings, (6) Service mode.] 2. Adjust the head-to-paper distance. [See 3-3. Adjustment / Settings, (6) Service mode.]	- Service test print - Printing on thick paper
Carriage unit QM2-3332	The red screws on both sides of the main chassis securing the carriage shaft are allowed to be loosened only when replacing the carriage or removing the main chassis. Before removing the screws, mark the original screw position, and re-fasten them at the original position.	**At replacement:** 1. Apply grease to the sliding portions. [See 3-3. Adjustment / Settings, (3) Grease application.] 2. Adjust the distance between the carriage shaft and the platen. [See 3-3. Adjustment / Settings, (2) Main chassis and carriage rail adjustment.] 3. Perform the print head alignment in the user mode.	- Printing on thick paper
Paper feed motor unit QM2-2866	- The red screws securing the paper feed motor are allowed to be loosened. (DO NOT loosen any other red screws.)	**At replacement:** 1. Adjust the paper feed motor. [See 3-3. Adjustment / Settings, (1) Paper feed motor adjustment.]	
Timing slit strip film QC1-6015 Timing slit disk film QC1-4962	- Upon contact with the film, wipe the film with ethanol. - Confirm no grease is on the film. (Wipe off any grease thoroughly with ethanol.) - Do not bend the film	**After replacement:** 1. Perform the print head alignment in the user mode.	- Service test print

*1: General notes:

- Make sure that the flexible cables and wires in the harness are in the proper position and connected correctly.
  [See 3-2. Special Notes on Repair Servicing, (1) Flexible cable and harness wiring, connection, for details.]
- Do not drop the ferrite core, which may cause damage.
- Protect electrical parts from damage due to static electricity.
- Before removing a unit, after removing the power cord, allow the machine to sit for approx. 1 minute (for capacitor discharging to protect the logic board ass'y from damages).
- Do not touch the timing slit strip film and timing slit disk film. No grease or abrasion is allowed.
- Protect the units from becoming soiled with ink.
- Protect the housing from scratches.
- Exercise caution with the red screws, as follows:

  i. The red screws of the paper feed motor may be loosened only at replacement of the paper feed motor unit (DO NOT loosen them in other cases).

  ii. Except for carriage replacement, DO NOT loosen the red screws (which secures the carriage shaft positioning) on both sides of the main chassis.

  After replacement of the carriage, print on thick paper to confirm that the distance between the carriage shaft and the platen is proper, and there is no contact of the ink cartridges to the paper.

  If the ink cartridges contact the paper, adjust the carriage shaft, while referring to [3-3. Adjustment / Settings, (2) Main chassis and carriage rail adjustment.]

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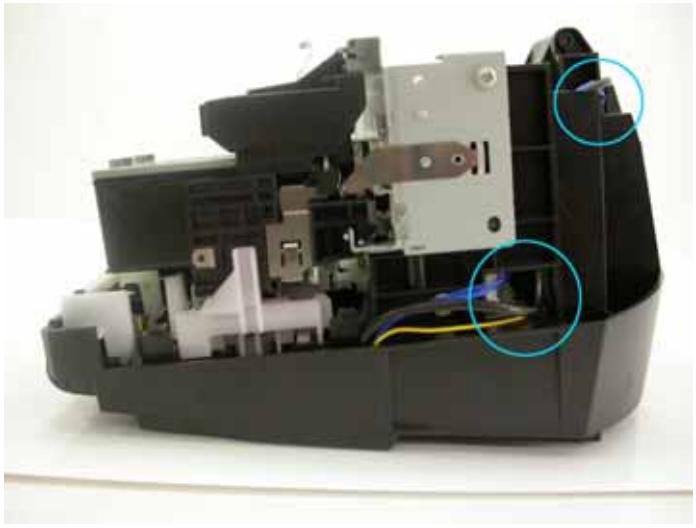
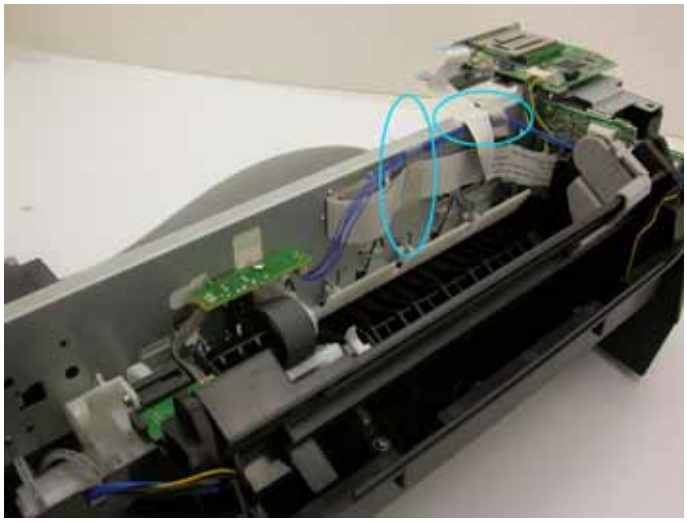
<Part 1: 3. REPAIR, 3-1>

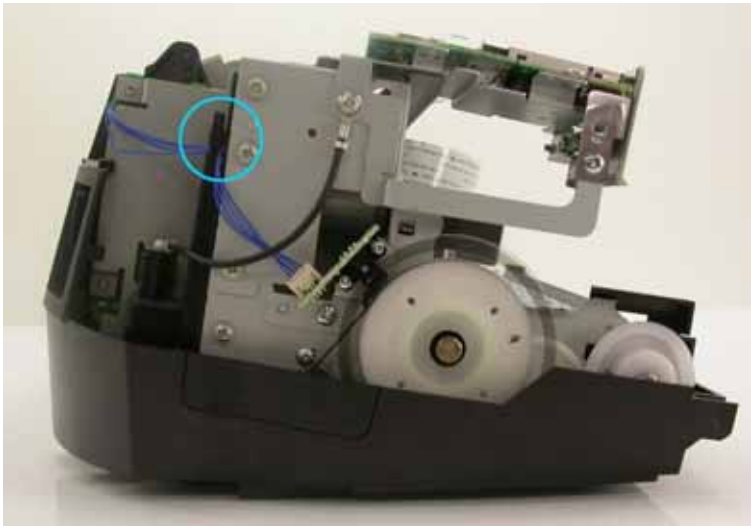
3-2. Special Notes on Repair Servicing

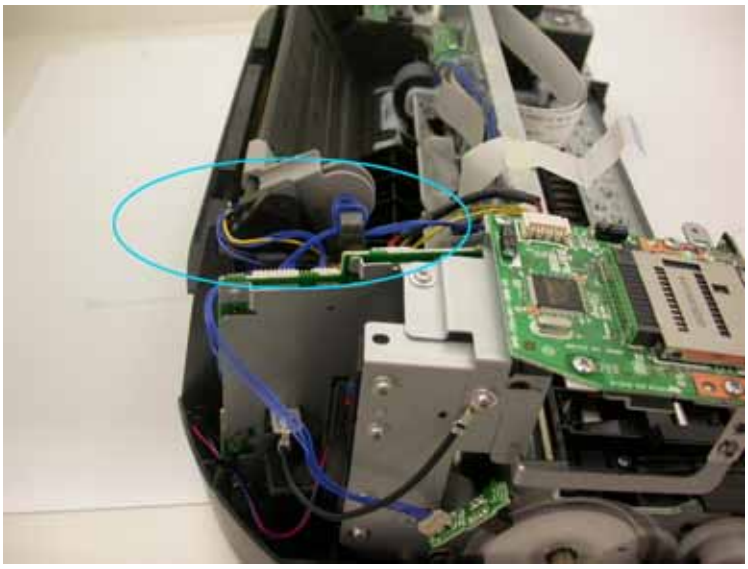
(1) Flexible cable and harness wiring, connection

Be careful of wiring of the flexible cables and harness. Improper wiring or connection may cause breakage of a line, leading to ignition or emission of smoke.









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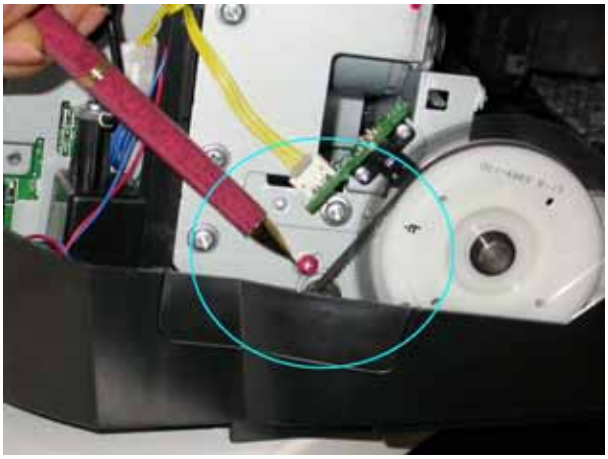
<Part 1: 3. REPAIR, 3-2>

3-3. Adjustment / Settings

(1) Paper feed motor adjustment

Perform the following adjustments when the paper feed motor unit is replaced:

1) When removing the screws, mark the screw hole.



2) When installing the motor, position each screw to the mark, and fasten them.
3) After replacement, be sure to perform the service test print, and confirm that no strange noise or faulty print operation (due to dislocation of the belt or gear, or out-of-phase motor, etc.) occurs.

Note: The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit. DO NOT loosen them in other cases.

(2) Main chassis and carriage rail adjustment

[Carriage rail adjustment]

Perform the following adjustments when the carriage unit is replaced:

1) Before loosening the red screws, mark the boss position beside the screw.

2) In attaching the carriage rail, make sure that the boss fits into the hole and to the mark made in step 1), then fasten the screws.
3) Be sure to perform the confirmation test detailed below; confirm that the print quality is proper and the ink cartridges are not contacting the paper.

[Main chassis adjustment]

After installing the main chassis, be sure to perform the confirmation test detailed below; confirm that the print quality is proper and the ink cartridges are not contacting the paper.

<Confirmation test>

Using Photo Paper Pro, and with the paper thickness lever set to the left position (normal position), print an image and confirm that the print quality is proper, and the ink cartridges are free from contacting the paper.

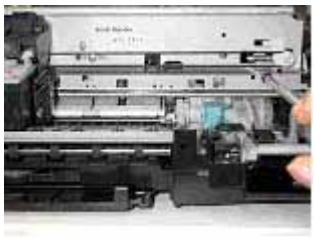
If the print quality is not proper, or an ink cartridge contacts the paper, adjust the head-to-paper distance in the following procedures:

Procedures for adjusting the head-to-paper distance:

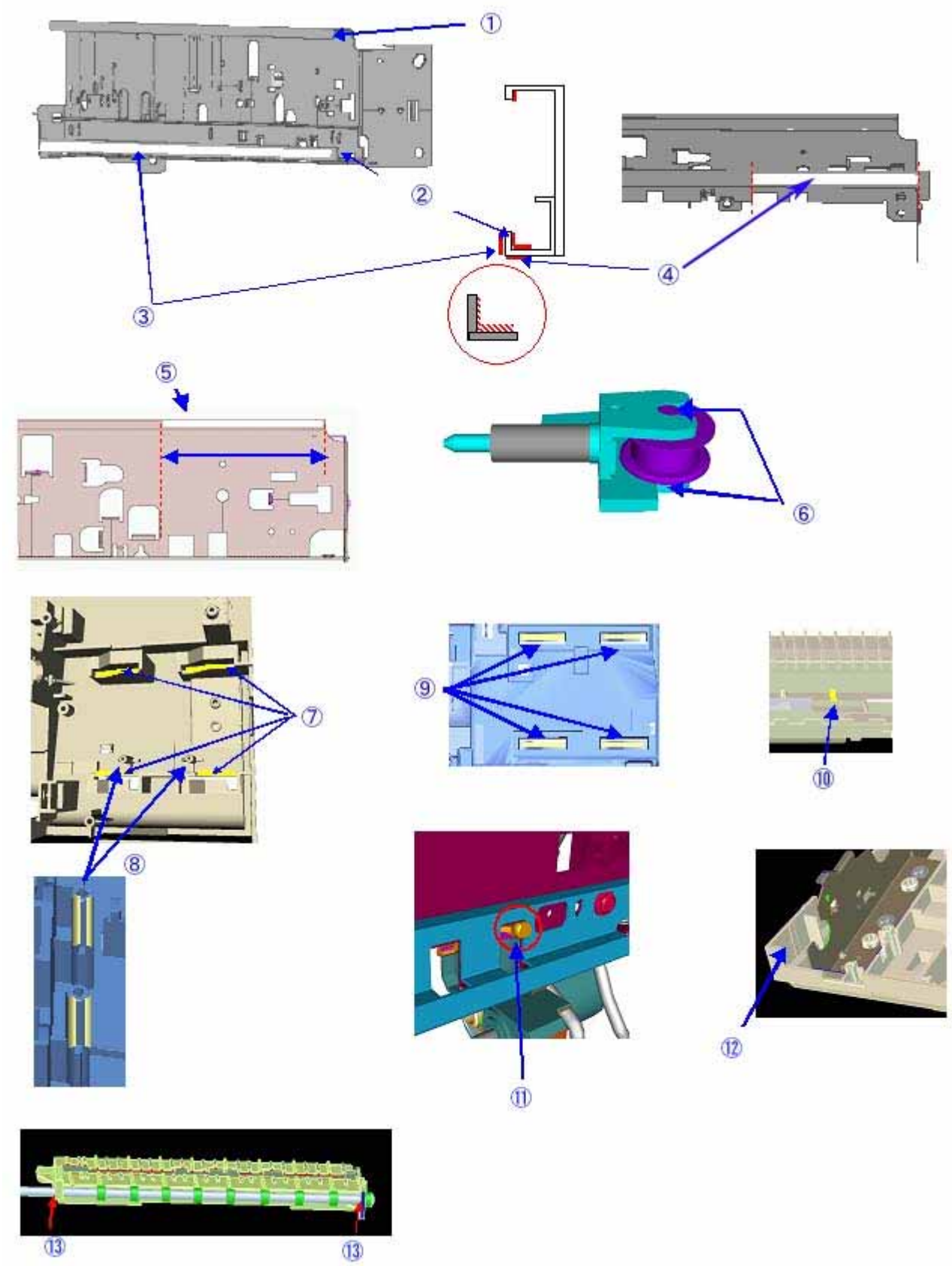
i) At the bottom edge of the boss beside the red screw on each side of the chassis, put a mark to indicate the current position. (See the step 1 of the carriage rail adjustment above.)

ii) Loosen the red screws, and adjust the head-to-paper distance.

- To prevent the ink cartridges from contacting the paper: Raise the carriage rail from the current position.
- To improve the print quality: Lower the carriage rail from the current position.



(3) Grease application



Part name	Where to apply grease / oil		Grease / oil name	Grease / oil amount
Chassis	1	Entire contact surface of the carriage slider	FLOIL KG107A	100mg
	2	Inside of the rail	FLOIL KG107A	420mg
	3	Back of the rail	FLOIL KG107A	100mg
	4	Bottom of the rail	FLOIL KG107A	1 drop
	5	Carriage slider contact portion (front side)	FLOIL KG107A	1 drop
Idler pulley	6	Sliding portion	MOLYKOTE PG-641	1 drop
Bottom case unit	7	Slider shaft sliding portion (bottom case top)	MOLYKOTE PG-641	1 drop x 4 locations
	8	Slider shaft sliding portion (bottom case top)	MOLYKOTE PG-641	1 drop x 4 locations
	9	Slider shaft sliding portion (bottom case top)	MOLYKOTE PG-641	1 drop x 4 locations
	10	Platen link sliding portion	MOLYKOTE PG-641	1 drop
	11	Eject roller sliding portion	MOLYKOTE PG-641	Half drop
	12	Trigger arm (carriage sliding portion)	MOLYKOTE PG-641	1 drop
Platen	13	Eject roller sliding portion	FLOIL KG107A	Half drop x 2 locations

Note: 1 drop = 9 to 18 mg

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<Part 1: 3. REPAIR, 3-3 (1) to (3)>

(4) Waste ink counter reset

After replacement of the logic board ass'y, reset the waste ink amount value to the replaced logic board. In addition, according to the waste ink amount, replace the waste ink absorber (the bottom case unit or the ink absorbers). The standard amount for waste ink absorber replacement is given in the table below.

<Main waste ink absorber>

Waste ink amount*1	Bottom case unit or ink absorber kit replacement - Bottom case unit: QM2-3321 - Ink absorber kit: QY5-0148
Less than 7%	Not required.
7% or more	Required.

<Platen waste ink absorber>

Waste ink amount*1	Ink absorber (QC1-6014) replacement, and Ink absorber kit (QY5-0149) replacement
Less than 7%	Not required.
7% or more	Required.

*1: Check the waste ink amount by service test print or EEPROM information print.
[See 3-3. Adjustment / Settings, (6) Service mode, for details.]

(5) User mode

Function	Procedures	Remarks
Nozzle check pattern printing	On standalone machine, press the Menu button, select Maintenance/settings to move to Maintenance, and perform the selection.	Also available from the printer driver Maintenance.
Print head cleaning	Cleaning both black and color: On standalone machine, press the Menu button, select Maintenance/settings to move to Maintenance, and perform the selection.	Also available from the printer driver Maintenance.
Print head deep cleaning	Cleaning both black and color: On standalone machine, press the Menu button, select Maintenance/settings to move to Maintenance, and perform the selection.	Also available from the printer driver Maintenance.
Automatic print head alignment	On standalone machine, press the Menu button, select Maintenance/settings to move to Maintenance, and perform the selection.	Also available from the printer driver Maintenance.
Manual print head alignment	On standalone machine, press the Menu button, select Maintenance/settings to move to Maintenance, and perform the selection.	Also available from the printer driver Maintenance.
Print head alignment value print	Print and confirm the print head alignment values set in the	Also available from the printer driver Maintenance. In the Maintenance tab,

	machine. On standalone machine, press the Menu button, select Maintenance/settings to move to Maintenance, and perform the selection.	select Print Head Alignment and click Check Setting.
Paper feed roller cleaning	On standalone machine, press the Menu button, select Maintenance/settings to move to Maintenance, and perform the selection.	Also available from the printer driver Maintenance.
Bottom plate cleaning	On standalone machine, press the Menu button, select Maintenance/settings to move to Maintenance, and perform the selection.	Also available from the printer driver Maintenance. If the problem that smear is on the back side of the paper is not resolved by Bottom plate cleaning, clean the plate ribs.
Quiet mode setting	On standalone machine, press the Menu button, select Maintenance/settings, then Device settings, and go to Print Settings, then perform the selection.	Also available from the printer driver Maintenance.
Wireless print setting	Wireless print settings such as paper type and print layout can be made. On standalone machine, press the Menu button to move to Maintenance / Settings, select Device Settings, then perform the selection.	
Read/write attribute setting	On standalone machine, press the Menu button to move to Maintenance / Settings; select Device Settings, Other Settings, and perform the selection.	
Contrast adjustment	The contrast of the LCD can be adjusted. On standalone machine, press the Menu button to move to Maintenance / Settings, select Device Settings, then Other Settings, and perform the selection.	
Slide show setting	The slide show display quality can be selected. On standalone machine, press the Menu button to move to Maintenance / Settings; select Device Settings, Other Settings, and perform the selection.	
Date display	On standalone machine, press the Menu button to move to Maintenance / Settings; select Device Settings, Other Settings, and perform the selection.	
Language selection	The language to be used on the LCD can be selected. On standalone machine, press the Menu button to move to Maintenance / Settings, select Device Settings, then perform the	

	selection.	
Reset	Settings are reset to the original shipping conditions. On standalone machine, press the Menu button to move to Maintenance / Settings; select Device Settings, then Reset Setting.	
Saving the settings	The current print settings are saved. On standalone machine, press the Menu button to move to Maintenance / Settings; select Device Settings, then Save Settings.	
Calling up the saved settings	The saved print settings are called up. On standalone machine, press the Menu button to move to Maintenance / Settings; select Device Settings, then Load Settings.	
Head-to-paper distance setting	Move the paper thickness lever to set the head-to-paper distance to Auto or Wide.	

(6) Service mode

Function	Procedures	Remarks
Service test print - Model name - ROM version - USB serial number - Waste ink amount - Destination settings	See "Service mode operation procedures" below.	Set a sheet of A4 or letter- sized paper. For a print sample, see 3-4. Verification Items, (1) Service test print, <Service test print sample>.
EEPROM information print	See "Service mode operation procedures" below.	Set a sheet of A4 or letter- sized paper. For a print sample, see 3-4. Verification Items, (2) EEPROM information print
EEPROM initialization	See "Service mode operation procedures" below.	The following items are NOT initialized: - USB serial number - Destination settings - Waste ink counter
Waste ink counter reset	See "Service mode operation procedures" below.	The main and platen waste ink counters can be reset separately. If the main waste ink amount is 7% or more, replace the bottom case unit or the main ink absorber (inside the bottom case

		unit). If the platen waste ink amount is 7% or more, replace the platen ink absorber (inside the bottom case unit).
Destination settings	See "Service mode operation procedures" below.	After destination settings, make sure to initialize the EEPROM.
Button and LCD test	See "Service mode operation procedures" below.	Confirm the button and LCD operation. Perform this test at operation panel replacement.

Note: At the end of the service mode, press the Power button.

<Service mode operation procedures>

1) With the machine power turned off, while pressing the Stop/Reset button, press and hold the Power button. (DO NOT release the buttons. The Power LED lights in green to indicate that a function is selectable.)
2) While holding the Power button, release the Stop/Reset button. (DO NOT release the Power button.)
3) While holding the Power button, press the Stop/Reset button 2 times, and then release both the Power and Stop/Reset buttons. (Each time the Stop/Reset button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green, starting with Alarm LED.)
4) When the Power LED lights in green, press the Stop/Reset button the specified number of time(s) according to the function listed in the table below. (Each time the Stop/Reset button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green, starting with Alarm LED.)

Time(s)	LED indication	Function	Remarks
0 times	Green (Power)	Power off	
1 time	Orange (Alarm)	Service test print	See 3-4. Verification Items, (1) Service test print.
2 times	Green (Power)	EEPROM information print	See 3-4. Verification Items, (2) EEPROM information print.
3 times	Orange (Alarm)	EEPROM initialization	
4 times	Green (Power)	Waste ink counter resetting	Proceed to the following step 5), and follow the Waste ink counter reset procedures.
5 times	Orange (Alarm)	Destination settings	Proceed to the following step 5), and follow the Destination settings procedures.
6 times	Green (Power)	Print head deep cleaning	
11 times	Orange (Alarm)	Button and LCD test	Proceed to the following step 5), and follow the Button and LCD test procedures.
12 times or more		Return to the menu selection	

5) After the function (menu) is selected, press the Power button. The Power LED lights in green, and the selected function is performed. (When the operation completes, the machine returns to the menu selection mode automatically.)

<Waste ink counter reset procedures>

In the waste ink counter resetting mode, press the Resume/Cancel button the specified number of time(s) according to the ink counter reset value listed in the table below, and press the Power button.

Time(s)	LED indication	Waste ink counter value
0 times	Green (Power)	Reset the main waste ink counter (0%).
1 time	Orange (Alarm)	Reset the platen waste ink counter (0%).
2 times	Green (Power)	Re-set the main waste ink counter value to 50%.

<Destination settings procedures>

In the destination settings mode, press the Stop/Reset button the specified number of time(s) according to the destination listed in the table below, and press the Power button.

Time(s)	LED indication	Destination
0 times	Green (Power)	Return to the menu selection
1 time	Orange (Alarm)	Japan
2 times	Green (Power)	Korea
3 times	Orange (Alarm)	USA
4 times	Green (Power)	Europe
5 times	Orange (Alarm)	Australia
6 times	Green (Power)	Asia
7 times	Orange (Alarm)	China
8 times	Green (Power)	Taiwan
9 times or more	Orange (Alarm)	Return to the destination settings mode

Note: After setting the destination, be sure to initialize the EEPROM. The destination setting may not be valid unless the EEPROM is initialized after destination settings.

Confirm the model name in the service test print or EEPROM information print.
[See 3-4. Verification Items, (1) Service test print, or (2) EEPROM information print.]

<Button and LCD test procedures>

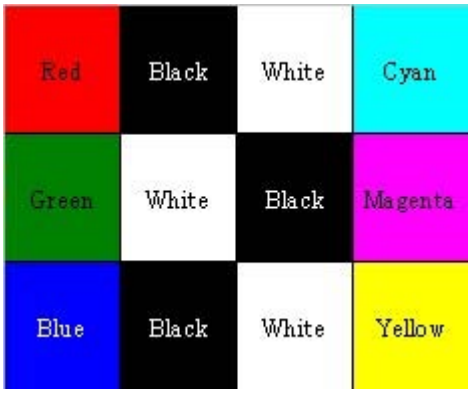
In the button and LCD test mode, perform the following to confirm the operation of the buttons and the LCD.

1) Press the Stop/Reset button. The LCD color changes and displays a full blue screen.
2) Press each button on the operation panel (except the Power and Stop/Reset buttons). The color of a portion corresponding to the pressed button changes to red.

   For each portion of the display and its corresponding button, see the diagram below. (The diagram is a sample when the down cursor and print buttons are pressed.)

   === LCD ===

3) When all the buttons excluding the Power and Stop/Reset buttons are pressed, the entire LCD changes to a full red screen.
4) Open the front cover to display the color pattern.



5) Press the Power button to return to the service mode menu selection.

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<Part 1: 3. REPAIR, 3-3 (4) to (6)>

3-4. Verification Items

(1) Service test print

<EEPROM information contents>

On the service test print (sample below), confirm the EEPROM information as shown below. (The information is given in the upper portion of the printout.)

iP6220D US V.xxx USB(xxxxxx) Dd=xxx.x

iP6220D: Model name

US: Destination

V.xxx : ROM version

USB(xxxxxx): USB serial number

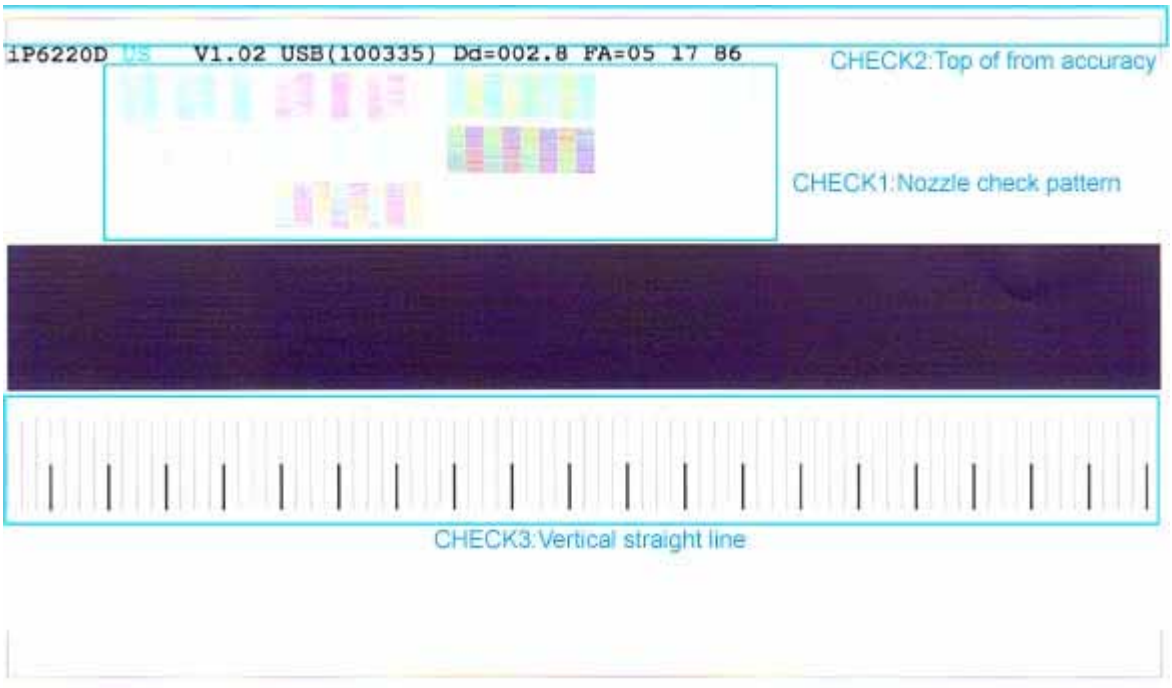
Dd=xxx.x: Main waste ink amount (%)

<Print check items>

On the service test print (sample below), confirm the following items:

- Check 1, nozzle check pattern: Ink shall be ejected from all nozzles
- Check 2, top of form accuracy: The line shall not extend off the paper.
- Check 3, vertical straight lines: The line shall not be broken.

<Service test print sample>


iP6220D US V1.02 USB(100335) Dd=002.8 FA=05 17 86
CHECK2:Top of from accuracy
CHECK1:Nozzle check pattern
CHECK3:Vertical straight line

(2) EEPROM information print

<How to read the EEPROM information print>

Print sample:

1: iP6220D US 2: V1.03 3: IF(USB2=1) 4: D=004.5 Ds=0.002 5: ST=2005/07/27-18:30
6: ER(ER0=1000 ER1=0000) 7: LPT=2005/08/13-09:09
8: PC(M=002 R=000 T=001 D=009 C=009)
9: CLT(2005/08/10-18:30)

10: CT(Photo=001 CL_HC=002 CL_ST=000) 11: IS(PBK=0 C=0 PC=0 PM=0 M=0 Y=0)
12:: P_ON(S=00002) 13: A_REG=1 14: M_REG=0
15: UR(A(BKsi)=000 B(CLsi)=000 C(PBkbi)=000 D(SPBkbi)=000
E(Cbi)=000 F(SCbi)=000 G(BkCly)=000 H(Mbi)=000 I(SMbi)=000
J(PCbi)=000 K(SPCbi)=000 L(PMbi)=-01 M(SPMbi)=000 N(BkClx)=+06)

16: LG=01 Japanese 17: WP-0021 18: CDIN(LG-000 PB=000 OPB=000) 19: BTIN=0 20: MSD(002)
21: TPAGE=00140
22: PAGE(All=00001 PP=00001 HR+MP=00000 PR+SP+SG=00000 GP=00000 PC=00000 EV=00000)
23: CDPAGE(All=00000) 24: EDGE=00000 25: L=00000
26: Head Temp=43.0
27: Env Temp=27.5 28: FF(80 00 09) 29: OPP=00000 30: BTPAGE=00000 31: PrnB=00000 32: Seal=00000
33: CardPaper=00000 34: CardIns=(0001) 35: CardPrn=(0000)
36: CDD-PR(L=0002 2L=0000 PC=0000 A4=0000) 37: CDD-SP(L=0002 2L=0000 PC=0000 A4=0000)
38: CDD-MP(L=0002 2L=0000 PC=0000 A4=0000) 39: DCD-PR(L=0002 2L=0000 PC=0000 A4=0000)
40: DCD-FPP(L=0002 2L=0000 PC=0000 A4=0000) 41: DCD-MPP(L=0002 2L=0000 PC=0000 A4=0000)

Printed items:

1. Model name 2. ROM Version 3. Connected I/F (USB1) 4. Waste ink amount (D = Main, Ds = Platen) 5. Installation date
6. Operator call/service call error record 7. Last printing time
8. Purging count
9. Cleaning time
10. Ink cartridge replacement count (standard BK, high-capacity BK, standard CL, high-capacity CL)
11. Ink status (BK/C/PC/PM/M/Y)
12. Power-on count (soft-on) 13. Automatic print head alignment 14. Manual print head alignment by user
15. User print head alignment value
16. Language destination 17. Wiping count 18. Camera Direct Print-supported device connection record (Bubble Jet Direct, Canon PictBridge, Other maker's PictBridge)
19. Bluetooth-supported device connection record 20. Longest period of non-printing
21. Total pages fed
22. Pages fed (total, plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, Postcard, Envelope)
23. Camera Direct print pages (total) 24. Borderless print pages 25. L & 4x6 print pages
26. Print head temperature
27. Inside temperature 28. Line inspection information 29. Other photo paper print pages 30. Print pages via Bluetooth connection
31. Print Beam print pages 32. Photo Stickers print pages
33. Business card & Credit card size paper print pages 34. Memory card use count 35.Card direct print pages
36. Number of Card Direct print: Photo Paper Pro (L/4x6, 2L/5x7, Japanese postcard, and A4/Letter)
37. Number of Card Direct print: Photo Paper Plus Glossy (L/4x6, 2L/5x7, Japanese postcard, and A4/Letter)
40. Number of Camera Direct print: Fast Photo Paper (L/4x6, 2L/5x7, Japanese postcard, and A4/Letter)
41. Number of Camera Direct print: Matte Photo Paper (L/4x6, 2L/5x7, Japanese postcard, and A4/Letter)

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<Part 1: 3. REPAIR, 3-4>

Part 2

TECHNICAL REFERENCE

1. NEW TECHNOLOGIES

(1) New Direct Print function

- Red eye correction: The red eyes area is selected from an image, and the red eyes are detected automatically.

  Correction is made at the detected area.

- Memory card writing function: From the Menu, Setting of Read only (writing is not possible) and Read_Write (writing is possible.) is possible.

<Possible problems with this function>

1) Print results is red-tinged. -> Change the correction value. (Shift to Y side.)

2) Direct Print is not possible. -> Release Write setting.

(2) Bluetooth printing support (option)

This printer has the Bluetooth printing function.

Install the optional Blurtooth unit (BU-20) in the printer.

<Possible problems with this function>

Printing is not possible. -> Shorten the communication distance or get rid of obstacles.

(3) Quiet mode

The machine has a quiet mode function.

Compared with the normal mode,

- Acoustic noise level: slightly lower. (HS normal approx. 42.7 dB, Quiet approx. 42.5 dB)
- Audible overtone level: Sound quality changes, and sound becomes quieter.
- Print speed: Slows.

<Possible problems with this function>

1) The operation sound does not become quieter.

   => The audible sound becomes only slightly quieter.

2) Printing is slow.

   => Disable the Quiet mode.

(4) Remaining ink level detection function

The machine has a function to detect the remaining ink level.

<Detection method>

- Dot counting (counted for each Photo / CL ink cartridge)
- The remaining ink level is detected by total counted dot values of 3 colors of ink.

<Display method>

- Displayed on the Status Monitor (at 4 levels listed below for each Photo / CL ink cartridge)

  Level 1: Approx. 70% of ink remaining

  Level 2: Approx. 40% of ink remaining

  Level 3: Indication of "!" mark (Remaining ink level is low)

  Level 4: Indication of "X" mark (No ink remaining)

Note: Remaining ink detection function displays the status only, and does not cause errors.

<Accuracy>

- The margin of error of detection accuracy is +/-10% in normal printing.
- The margin of error is likely to be large in the following specific print patterns:

  When printing continuously using any one of the Photo /CL three colors of ink:

  As the remaining ink level is calculated by the counted dot value of the least remaining ink of Photo/Cl three colors, if any of the C/M/Y inks is heavily consumed, the margin of error for remaining ink increases.

<Possible problems with this function>

1) When a one-used ink cartridge is installed, the actual remaining ink level is not detected, and an error indicating the remaining ink amount is unknown occurs.

   => Pressing the OK button will clear the error, and printing can be done. However, the function to detect the remaining ink amount is disabled (ink status i not displayed).

   e.g. An ink cartridge was once used in another machine.

   A current ink cartridge is removed from the machine. -> A new ink cartridge is installed. -> The removed ink cartridge is installed again after removing the new ink cartridge.

2) Due to the specific print pattern, the actual remaining ink level does not match the indicated remaining ink level.

   - This is because a detection error can be large in specific print patterns (such as continuous printing using any one of the Photo/CL three colors of ink or continuous solid printing, etc.). (See "Accuracy" above.)

(5) Print head alignment

The machine has a print head alignment function to correct displacements between the nozzle lines of the print head, and incorrect print position in bi-directional printing.

<Print head alignment>

A: Alignment of photo black nozzles in bi-directional printing

B: Alignment of cyan nozzles in bi-directional printing

C: Alignment of magenta nozzles in bi-directional printing

D: Alignment yellow nozzles in bi-directional printing

E: Alignment of photo black small nozzles in bi-directional printing

F: Alignment of cyan small nozzles in bi-directional printing

G: Alignment of magenta small nozzles in bi-directional printing

H: Alignment of yellow small nozzles in bi-directional printing

I: Alignment of photo cyan nozzles in bi-directional printing

J: Alignment of photo magenta nozzles in bi-directional printing

K: Alignment of photo cyan small nozzles in bi-directional printing

L: Alignment of photo magenta small nozzles in bi-directional printing

O: Horizontal alignment between chips

P: Vertical alignment between chips

W: Alignment of color nozzles small inclination

X: Alignment of black nozzles inclination

<Problems that can be resolved by this function>

Try the print head alignment for the following problems:

- The line is not straight.

- Printout is granulated.

<Possible problems with this function>

1) Print head alignment error

   => Perform print head deep cleaning (refreshing) because non-ejection of ink may occur.

(6) Print Beam printing

Wireless printing of photos from a camera-equipped mobile phone via infrared or Bluetooth communication is available.

(Wireless printing from a computer or PDA is not available. Text cannot be wirelessly printed.

For Bluetooth communication, use the optional BU-20.)

<Supported mobile phones>

- Mobile phones with the IrDA port, supporting image data transfer via infrared communication

<Printable data>

- Photos taken with a camera-equipped mobile phone

<Restrictions>

- An image of 3.9 M or larger cannot be printed in some instances. Therefore, depending on a mobile phone model, an image at the maximum resolution may not be printed.

- A moving image is not printed.

- Depending on a mobile phone model, data saved in its memory card is not printed.

- Downloaded contents or photos downloaded from a URL attached to a mail may not be printed.

<Possible problems with this function>

1) Print image quality is rough.

   - The image resolution is automatically determined by the image size at shooting, thus printing on a large size paper may result rough print quality.

   => Print on a small size paper, such as Business Card size, Credit Card size, or Photo Stickers.

2) Print orientation (portrait / landscape) cannot be specified.

   - The print orientation is automatically determined by the image size at shooting.

   => Take a photo again in a desired orientation (portrait or landscape).

3) In borderless printing, the left and right side portions or the top and bottom portions extend off the paper.

   - This is because the aspect ratio of a photo taken by a mobile-phone differs from that of paper.

   => Take a photo again, adjusting to position a shooting object in the center of the frame.

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<Part 2: 1. NEW TECHNOLOGIES>

2. CLEANING MODE AND AMOUNT OF INK PURGED

To prevent printing problems due to bubbles, dust, or ink clogging, print head cleaning is performed before the start of printing, except in the following cases:

- Cleaning on arrival: Performed when the access cover is closed.
- Cleaning by dot count: Performed after ejection of paper (or after printing on the back side of paper when auto duplex printing is performed).
- Manual cleaning / deep cleaning: Performed manually.

<Cleaning mode list>

Condition	Details	Amount of ink used (g)	Est. required time (sec.)
Dot count cleaning	When the specified number of dots are printed since the previous cleaning.	Photo: 0.10 CL: 0.10	40
Timer cleaning - 0 (First to third cleaning after shipping from the plant.)	If 24 to 336 hours have elapsed since the previous cleaning till the start of the next printing.	Photo: 0.10 CL: 0.10	40
Timer cleaning - 1	If 336 to 1,440 hours have elapsed since the previous cleaning till the start of the next printing.	Photo: 0.10 CL: 0.10	40
Timer cleaning - 2	If 1,440 to 2,160 hours have elapsed since the previous cleaning till the start of the next printing.	Photo: 0.15 CL: 0.15	40
Timer cleaning - 3	If more than 2,160 hours have elapsed since the previous cleaning till the start of the next printing.	Photo: 0.30 CL: 0.30	55
If the print head has not been capped before power-on		Photo: 0.15 Photo: 0.15	40
Ink cartridge replaceme-1	Till 5,760 hours after the production date.	Photo: 0.10 CL: 0.10	40
Ink cartridge replaceme-2	If more than 5,760 hours have elapsed since the production date.	Photo: 0.20 CL: 0.20	45
On arrival of the machine		Photo: 0.15 CL: 0.15	40
Manual cleaning	- Via the operation panel - Via the MP driver	Photo: 0.10 CL: 0.10	40
Deep cleaning	- Via the operation panel - Via the MP driver	Photo: 0.45 CL: 0.45	50

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<Part 2: 2. CLEANING MODE AND AMOUNT OF INK PURGED>

3. PRINT MODE

White background: Print with 5 pl only
Yellow background: Print with 5 pl and 2 pl
Green text: Fast
Blue text: Standard
Red text: High

3-1. Resolution in Printing via Computer (Print on One or Both Sides of Paper, Photo and CL Cartridges, Color Mode)

Paper type		Quality level 5	Quality level 4	Quality level 3	Quality level 2	Quality level 1
Plain paper	No. of passes Resolution (dpi)	1 pass Bi-directional Bk:300x300 Y,M,C:300x300	1 pass Bi-directional Bk:300x300 Y,M,C:300x300	3 passes Bi-directional Bk:600x600 Y,M,C:600x600	6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600	
High Resolution Paper HR-101S	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	
Photo Paper Pro PR-101	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	16 passes Bi-derection Bk: 1200x1200 Y,M,C: 1200x1200 Pm,PC: 1200x1200 (print on one side)
Glossy Photo Paper GP-401	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss PP-101/SG-101	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	
Matte Photo Paper MP-101	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600	12 passes Bi-directional Bk:600x600 Y,M,C:600x600	

				Pm,Pc:600x600 (print on one side)	Pm,Pc:600x600 (print on one side)	
Envelope	No. of passes Resolution (dpi)		3 pass Bi-directional Bk: 600x600 YMC: 600x600 (print on one side)	4 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	6 passes Bi-directional Bk:600x600 Y,:M,C600x600 Pm,Pc:600x600 (print on one side)	
T-shirt transfer TR-301	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 (print on one side)		
Transparency CF-102	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 (print on one side)	8 passes Bi-directional Bk: 600x600 Y, M, C: 600x600 (print on one side)	
Photo Paper Plus Double Sided PP-101D	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600	
Other Photo Paper	No. of passes Resolution (dpi)				12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	

3-2. Resolution in Printing via Computer (Print on One or Both Sides of Paper, CL Cartridge, Color or Monochrome Mode)

Paper type		Quality level 5	Quality level 4	Quality level 3	Quality level 2	Quality level 1
Plain paper	No. of passes Resolution (dpi)	1 pass Bi-directional Y, M, C: 300x300	1 pass Bi-directional Y, M, C: 300x300	3 passes Bi-directional Y, M, C: 600x600	6 passes Bi-directional Y, M, C: 600x600	
High Resolution Paper HR-101S	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	
Photo Paper Pro PR-101	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	16 passes Bi-directional Y, M, C: 1,200x1,200 (print on one side)

Glossy Photo Paper GP-401	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss PP-101/SG-101	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	
Matte Photo Paper MP-101	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	
Envelope	No. of passes Resolution (dpi)		3 passes Bi-directional Y, M, C: 600x600 (print on one side)	4 passes Bi-directional Y, M, C: 600x600 (print on one side)	6 passes Bi-directional Y, M, C: 600x600 (print on one side)	
T-shirt transfer TR-301	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)		
Transparency CF-102	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	8 passes Bi-directional Y, M, C: 600x600 (print on one side)	
Photo Paper Plus Double Sided PP-101D	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600	12 passes Bi-directional Y, M, C: 600x600	
Other Photo Paper	No. of passes Resolution (dpi)				12 passes Bi-directional Y, M, C: 600x600 (print on one side)	

3-3. Resolution in Borderless Printing (Print on One or Both Sides of Paper, Photo and CL Cartridges, Color Mode)

Paper type		Quality level 5	Quality level 4	Quality level 3	Quality level 2	Quality level 1
Plain paper	No. of passes Resolution (dpi)			3 passes Bi-directional Bk:600x600 Y,M,C:600x600		
Photo Paper Pro PR-101	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	16 passes Bi-directional Bk: 1200x1200 Y,M,C: 1200x1200 Pm,PC: 1200x1200 (print on one side)
Glossy Photo Paper GP-401	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss PP-101/SG-101	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	
Matte Photo Paper MP-101	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	
Photo Paper Plus Double Sided PP-101D	No. of passes Resolution (dpi)			6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	
Other Photo Paper	No. of passes Resolution (dpi)				12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600 (print on one side)	

3-4. Resolution in Borderless Printing (Print on One or Both Sides of Paper, CL Cartridges, Color or Monochrome Mode)

Paper type		Quality level 5	Quality level 4	Quality level 3	Quality level 2	Quality level 1
Plain paper	No. of passes Resolution (dpi)			3 passes Bi-directional Y, M, C: 600x600		
Photo Paper Pro PR-101	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	16 passes Bi-directional Y, M, C: 1,200x1,200 (print on one side)
Glossy Photo Paper GP-401	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss PP-101/SG-101	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	
Matte Photo Paper MP-101	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x600 (print on one side)	12 passes Bi-directional Y, M, C: 600x600 (print on one side)	
Photo Paper Plus Double Sided PP-101D	No. of passes Resolution (dpi)			6 passes Bi-directional Y, M, C: 600x 600	12 passes Bi-directional Y, M, C: 600x 600	
Other Photo Paper	No. of passes Resolution (dpi)				12 passes Bi-directional Y, M, C: 600x 600 (print on one side)	

3-5. Resolution in Direct Printing

Paper type		Standard	High
Plain paper	No. of passes Resolution (dpi)	6 passes Bi-directional Bk:300x300 Y,M,C:300x300 Pm,Pc:300x300 (with borders only) +	12 passes Bi-directional Bk:300x300 Y,M,C:300x300 Pm,Pc:300x300 (with borders only)
Photo Paper Pro PR-101	No. of passes Resolution (dpi)	6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600
Glossy Photo Paper GP-401	No. of passes Resolution (dpi)	6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss PP-101/SG-101	No. of passes Resolution (dpi)	6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600
Matte Photo Paper MP-101	No. of passes Resolution (dpi)	6 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600	12 passes Bi-directional Bk:600x600 Y,M,C:600x600 Pm,Pc:600x600

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<Part 2: 3. PRINT MODE>

4. FAQ (Problems Specific to the iP6220D and Corrective Actions)

No.	*	Function	Phenomenon	Condition	Cause	Corrective action	Possible call or complaint
1	A	Installation	Carriage error (LED cyclic blinking in orange and green 2 times)	During unpacking and setup by a user	The user may not have removed the packing material fixing the carriage. Note: Even if the carriage packing material remains, no parts are damaged.	- Remove the packing material fixing the carriage. - Turn the machine off, and on again.	The LEDs blink alternately in orange and green, 2 times (carriage error).
2	A	Installation	Ink cartridge installation error	- During unpacking and setup by a user - At ink cartridge replacement	The user did not install the ink cartridges completely.	Open the front cover, and install the ink cartridge(s) properly.	An error occurs indicating incomplete installation of an ink cartridge.
3	B	Installation	Memory card not accessed or removed	In using a memory card which needs to be used with the card adapter	The user inserted the memory card into the slot without using the card adapter.	- Use the card adapter to insert the memory card into the slot. - If the card cannot be removed, servicing is required.	- Printing cannot be done. - The memory card is not recognized.
4	B	Paper feeding	No paper feeding		The paper feed roller slips on the paper at paper feeding.	- Perform roller cleaning. - Clean the paper feed roller with pre-moistened wipe or moistened cloth.	- Paper out error - Paper cannot be fed - Cannot print
5	C	Paper feeding	Multi-feeding	In the high temperature and high humidity environment	The frictional force between the front and back sides of paper becomes high, and sheets stick to each other, contributing to multi-feeding.	- Fan the paper and set them in the ASF. - In case of PR-101, set the paper sheet by sheet in the ASF.	- Multiple sheets of paper feed. - Blank paper is ejected.
6	B	Paper feeding	Envelope not feeding	Envelopes	The paper feed roller slips on the paper at paper feeding. Note: Depending on the paper lots.	- Perform roller cleaning. - Clean the paper feed roller with pre-moistened wipe or moistened cloth. - Reduce the number of envelopes set in the ASF. - Flatten the envelope (with a pen).	- Paper out error - Paper cannot be fed - Cannot print
			Paper jam, or	Credit Card size	Due to paper	- Open the front	- Paper jam error

7	B	Paper feeding	improper paper ejection	paper	setting in the ASF with the longer side down, the LF roller cannot catch the paper, preventing paper feeding.	covert, and remove the jammed paper. - Set a sheet of Credit Card size paper in the ASF with the shorter side down, and press the Stop/Reset button.	- Paper cannot be fed - Cannot print
8	B	Image quality	Smearing on printed side		The edge of paper rises due when paper is curled, causing the ink cartridge to rub against the printed surface of paper.	- Correct the paper curl. - Set the paper thickness lever for thick paper. - Recommend the user to print in the print quality assurance area.	- Smear on the printed side of paper - Cannot print properly - Paper edge crease
9	B	Image quality	Smearing on the backside, or address side of postcards		When borderless printing is conducted continuously, ink mist attaches to the ribs on the platen, and is transferred to the backside of the following paper.	- Perform Bottom plate cleaning[*1]. - Clean the ribs on the platen with cotton swabs / buds[*2].	<Photo Paper Plus Double Sided> - Smears on the already printed side when printing the other side <When printing the address side of postcards> - Smears on the address side <When printing the message side of postcards> - Smears on the backside
10	C	Image quality	Horizontal lines or uneven print density at the trailing edge of paper		When the paper end comes off the pinch roller, printing is performed without the paper being held, preventing the ink drops from being ejected in the correct positions, resulting in unevenness.	- Recommend printing in the print quality assurance area. - Change the print quality from Standard to High mode. - Try other paper (PP-101).	- Cannot print to the bottom edge of paper - Line or uneven print density appear in the trailing edge of paper - Cannot print properly
11	C	Image quality	When printing using one cartridge only, horizontal lines or uneven print density due to LF roller feeding at small pitch		As the print media slightly slips while being fed by the LF roller, printed areas overlap, causing the problem.	- Perform print head alignment. - Change the print quality from Standard to High mode.	- Lines or uneven print density (on skin tones and background) - Cannot print properly

*1: When paper is not soiled, cleaning is complete. Change paper each time cleaning is performed.
*2: Locations to clean in servicing when soiling on paper in automatic duplex printing persists:

* Occurrence level:

A: The symptom is likely to occur frequently. (Caution required)
B: The symptom may occur under certain conditions, but likeliness is assumed very low in practical usage.
C: The symptom is unlikely to be recognized by the user, and no practical issues are assumed.

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<Part 2: 4. FAQ>

Part 3

APPENDIX

3. PIXMA iP6220D SPECIFICATIONS

<Machine>

Type	Desktop-type serial machine	
Paper feeding method	Auto sheet feed (auto sheet feeder)	
Resolution	4,800 x 1200 dpi (max.)	
Throughput speed (Target value)	Approx. 60 sec. (PP-101, 4x6, borderless printing, default print quality settings) For reference: Fast / Standard Black: 11 ppm / 3 ppm Color: 9 ppm / 2.6 ppm	
Printing direction	Bi-directional / Uni-directional	
Print width	203.2 mm (216 mm in borderless printing)	
Interface	USB 2.0 Hi-Speed, Direct print port, IrDA 1.2 , Bluetooth 1.2	
ASF stacking capacity	Max. 10 mm (Approx. 100 pages of 65 g/m^2)	
Paper weight	64 to 105 g/m^2	
Paper type (max. stacking capacity)	Plain paper, 64 to 105 g/m^2	A4, B5, LTR, A5 ≤ 10 mm; LGL ≤ 10 sheets
	High Resolution Paper HR-101	A4, B5, LTR ≤ 80 sheets
	Glossy Photo Paper GP-401	A4, LTR ≤ 10 sheets; 4x6, Credit Card ≤ 20 sheets
	Glossy Photo Paper GP-501	A4, LTR, 5x7 ≤ 10 sheets; 4x6 ≤ 20 sheets
	Photo Paper Pro PR-101	A4, LTR ≤ 10 sheets; 4x6, 4x8 ≤ 20 sheets
	Photo Paper Plus Glossy PP-101	A4, LTR, 5x7 ≤ 10 sheets; 4x6 ≤ 20 sheets
	Photo Paper Plus Double Sided PP-101D	A4, LTR, 5x7 ≤ 1 sheet
	Matte Photo Paper MP-101	A4, LTR ≤ 10 sheets; 4x6 ≤ 20 sheets
	Photo Paper Plus Semi-gloss SG-101	A4, LTR ≤ 10 sheets; 4x6 ≤ 20 sheets
	Transparency CF-102	A4, LTR ≤ 30 sheets
	T-shirt transfer TR-301	A4 ≤ 1 sheet
	Envelope	COM#10, DL ≤ 10 envelopes
	Photo Stickers PS-101	1 sheet
Detection functions	- Front cover open - Presence of print head - Wrong installation of print head - Remaining ink amount (dot count) - Presence of memory card - Paper presence - Waste ink amount - Internal temperature - Carriage position - Supported camera direct printing device	
Acoustic noise level (Highest print quality)	43 dB (Printing from a computer, highest print quality, Photo Paper Pro, Fine)	
Environmental requirements	During operation	Temperature: 5C to 35C (41F to 95F) Humidity: 10% to 90%RH (no condensation)

	Non-operation	Temperature	0C to 40C (32F to 104F)	
		Humidity	5% to 95%RH (no condition)	
Power supply	Power supply voltage, frequency	Power consumption	Standby	Power-off
	AC 100 to 240V, 50/60 Hz	Approx. 11 W	Approx. 1 W	Approx. 0.5 W
External dimensions	With the paper support and output tray retracted:Approx. 438 (W) x 260 (D) x 172 (H) mm With the paper support and output tray extended:Approx. 438 (W) x 464 (D) x 318 (H) mm			
Weight	Approx. 3.7 kg (excluding the ink cartridges)			
Related standards	Electromagnetic radiance: VCCI, FCC, IC, CE Mark, Taiwan EMC, C-Tick, CCC (EMC), Korea MIC, Gost-R Electrical safety: Electrical Appliance and Material Safety Law (DENAN), UL, C-UL, CB Report, CE Mark, GS, Gost-R, FT, SASO, CCC, SPRING, Korea EK, IRAM (Argentine)			
Serial No. location	Label affixed to the chassis (visible when the scanning unit is open)			
Remaining ink detection	Available (Detected by dot counting. Reset by user operation. Enabled at default.)			
Paper type detection	Not available			
Print head alignment	Available. Automatic alignment, or manual alignment.			

<Card Direct Printing>

Memory card drive	Supported memory card	Compact Flash TYPE I/II, Microdrive, SmartMedia Card, Memory Stick, Memory Stick PRO, SD Card, MultiMedia Card, xD-Picture Card*, miniSD memory card*, Memory Stick Duo*, Memory Stick PRO Duo*
Storage function	Operation	Via the machine buttons.
	Condition	Before changing the settings, the memory card must be removed.
	Function	Read/Write
Card Direct Printing	File format	JPEG (DCF, CIFF, Exif 2.21 or prior, JFIF), Tiff, DPOF compliant
	Supported print paper	PR-101 (A4, LTR, 4×6) PP-101 (A4, LTR, 5×7, 4×6) SG-101 (A4, LTR, 4×6) GP-401 (A4, LTR, 4×6, Credit Card) MP-101 (A4, LTR, 4×6) HR-101 (A4, LTR) PS-101 Plain paper
	Print quality	Standard (default), High
	Image correction function	Photo Optimizer PRO, VIVID, noise reduction, face brightener, image optimizer, red eye correction
	Image adjustment function	Brightness, contrast, hue
	Image processing function	Sepia, illustrated touch, no processing
	Image retrieval function	Available (Date)
	DPOF	Ver. 1.00 compliant Index printing, printing of an image the specified number of copies, printing of the specified image(s), printing with the shooting date
	Print layout	Single-photo/multi-photo/all-photo printing: 1 photo per page (borderless/with borders, only with borders for plain

		paper)
		DPOF printing: 1 photo per page (borderless/with borders) 6, 15, 24, 35, 80 photos per page 30 photos per page (panorama)
		Index printing: 6, 15, 24, 35, 80 photos per page 30 photos per page (panorama)
		Layout printing: 2, 4, 8 photos per page (borderless/with borders) Postcard (borderless/with borders, with/without lines) Album (4 photos per page, right/left) Mix 3 types (for A4/LTR)
		Sticker printing: 2, 4, 9, 16 stickers 1, 5, 6, 7 stickers (for free-cut)
	Information print	Date, file number
	Throughput	Approx. 90 sec., with the following conditions and settings: - A photo from a 5 mega-pixel digital camera - PP-101 4 x 6 borderless - Exif print - Standard print quality - Process from pressing the printing start button to ejecting paper

<Camera Direct Printing>

Supported digital cameras	Digital cameras and digital video cameras supporting Bubble Jet Direct or PictBridge
Supported print paper	PR-101 (A4, LTR, 4x6) PP-101 (A4, LTR, 5x7, 4x6, Panorama) SG-101 (A4, LTR, 4x6) GP-401 (A4, LTR, 4x6, Credit Card) PS-101 Plain paper
Print layout	- 1 photo per page (borderless/with borders) - Index printing
Resolution	1,200 x 1,200 dpi (max.)
Throughput	Approx. 89 sec., with the following conditions and settings: - A photo from a 5 mega-pixel digital camera - PP-101 4 x 6 borderless - Exif print - Standard print quality - Process from pressing the printing start button to ejecting paper

<Print Beam printing>

Supported mobile phone	Mobile phone equipped with IrDA 1.2 port, or with Bluetooth 1.2 port
Printable data	Image (JPEG only, text printing not possible)
Supported print paper	PR-101 (A4, LTR, 4x6)

	PP-101 (A4, LTR, 5x7, 4x6, Panorama) SG-101 (A4, LTR, 4x6) GP-401 (A4, LTR, 4x6, Credit Card) PS-101 Plain paper
Supported layout	1, 2, 4, 8 images per page (borderless/with borders) 3, 5, 6 images per page (A4 with borders) 1, 2, 4, 5, 6, 7, 9, 16 images per page (Photo Stickers with borders)

<Printing via Bluetooth communication (optional BU-20 required)>

Standard	Bluetooth version 1.2
Output	Bluetooth Power Class 2
Communication range	Good for approx. 10 m in radius (depending on interference between the communication devices, or radio wave conditions)
Frequency band	2.4 GHz
Communication speed	Approx. 720 kbps
Supported profile	BIP, OPP, SPP, HCRP
Supported OS for HCRP	- Windows XP Service Pack 2 or later - Windows XP Service Pack 1 or later: Microsoft "Support for Bluetooth Wireless Devices" or Toshiba Bluetooth Stack for Windows Ver. 3.00.10 or later has to be installed - Mac OS X 10.3.3 or later
BU-20 external dimensions	18.5 (W) x 47.5 (D) x 8.7 (H) mm with a cap
BU-20 weight	Approx. 7 g
BU-20 power supply voltage	4.4 to 5.25 V
BU-20 power consumption	500 mW (max.)
BU-20 operating temperature	5C to 35C (41F to 95F)
BU-20 operating humidity	10% to 90%RH (no condensation)

<Ink cartridge>

Type	Ink-tank-integrated print head
Print head	Bk: 320 nozzles in 2 vertical lines C/M/Y: 192 nozzles in 2 vertical lines per color
Ink color	Pigment-based black; Dye-based cyan, magenta, and yellow
Weight (net)	CL-41 approx. 45 g, CL-51 approx. 56 g, CL-52 approx. 56 g
Supply method	As a consumable

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<PIXMA iP6220D SPECIFICATIONS>